

# CONFERENCE ON DISARMAMENT

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## PROGRESS REPORT TO THE CONFERENCE ON DISARMAMENT ON THE THIRTY-SEVENTH SESSION OF THE AD HOC GROUP OF SCIENTIFIC EXPERTS TO CONSIDER INTERNATIONAL COOPERATIVE MEASURES TO DETECT AND IDENTIFY SEISMIC EVENTS

1. The Ad Hoc Group of Scientific Experts to Consider International Cooperative Measures to Detect and Identify Seismic Events, initially established in pursuance of the decision taken by the Conference of the Committee on Disarmament on 22 July 1976, held its thirty-seventh formal session from 7 to 18 February 1994, in the Palais des Nations, Geneva, under the Chairmanship of Dr. Ola Dahlman of Sweden. This was the twenty-ninth session of the Group, convened under its new mandate by the decision of the Committee on Disarmament at its 48th meeting on 7 August 1979.
2. The Ad Hoc Group is open to all member States of the Conference on Disarmament. It is also open on a standing basis to all non-member States which have been invited upon their request by the Conference on Disarmament to participate in its work. Accordingly, scientific experts and representatives of the following member States of the Conference on Disarmament participated in the session: Australia, Belgium, Canada, China, Egypt, France, Germany, Hungary, India, Italy, Japan, Mexico, Netherlands, Pakistan, Peru, Romania, Russian Federation, Sweden, United Kingdom of Great Britain and Northern Ireland and the United States of America.
3. Scientific experts and representatives from the following non-member States of the Conference on Disarmament participated in the session: Austria, Czech Republic, Denmark, Finland, New Zealand, Norway, South Africa, Spain and Switzerland.
4. During the session 41 papers containing information on national investigations related to the work of the Group were presented by experts from: Australia, Austria, Canada, Denmark, Egypt, Finland, France, Germany, Hungary, India, Italy, Japan, New Zealand, Norway, Pakistan, Romania, Russian Federation, South Africa, Spain, Sweden, Switzerland, United Kingdom and United States of America.

5. The Ad Hoc Group discussed the schedule and plans for developing, testing and evaluating an experimental International Seismic Monitoring System. This effort, referred to as GSETT-3, is now well under way, and builds upon key elements developed in previous tests. The GSETT-3 exercise has three primary objectives that distinguish it from previous tests. These objectives are to:

(a) develop and test new concepts for an experimental International Seismic Monitoring System, building upon previous experience;

(b) provide a practical basis upon which to furnish the Conference on Disarmament with timely technical information;

(c) develop an experimental system that can evolve and adapt to support future requirements that may be set forth by the Conference on Disarmament.

The current plans call for the full-scale phase of GSETT-3 to begin by 1 January 1995. The Group has adopted a schedule to meet this date as follows (note that the various versions of the experimental International Data Center are explained in Annex III):

|                        |                                                                                                  |
|------------------------|--------------------------------------------------------------------------------------------------|
| February 1994:         | IDC Version 1 implemented                                                                        |
| February-July 1994:    | Continue step-by-step implementation of stations, communications network and national facilities |
|                        | Operate IDC Version 1                                                                            |
| July 1994:             | IDC Version 2a implemented                                                                       |
| July-October 1994:     | Continue step-by-step implementation of stations, communications network and national facilities |
|                        | Operate IDC Version 2a                                                                           |
| October 1994:          | IDC Version 2b implemented                                                                       |
| October-December 1994: | Finalize participation of countries and stations                                                 |
|                        | Finalize elements of the experimental system                                                     |
|                        | Operate IDC Version 2b                                                                           |
| 1 January 1995:        | IDC Version 3 implemented                                                                        |
|                        | Begin full-scale tests                                                                           |
|                        | Begin evaluation of performance                                                                  |

It is difficult to assess, at this time, the ultimate duration of commitments of the type needed for GSETT-3. For financial planning purposes, countries participating in GSETT-3 should be prepared to support their national facilities and their communication links for a minimum of one year after the start of the full-scale experiment.

6. The Ad Hoc Group expressed grave concern over the lack of commitments of participation of seismological facilities and stations to meet the objectives of GSETT-3. A good global distribution of seismographic stations and communications from these stations to the International Data Center are essential to the success of the GSETT-3. A summary of the countries from which commitments are needed for GSETT-3 are given in Annex I.

- The Ad Hoc Group appreciates the offer of the Chairman of the Ad Hoc Committee on a Nuclear Test Ban to assist in widening the participation of countries in the planned GSETT-3. Countries can participate in GSETT-3 by contributing seismic facilities in their countries, by establishing communication links from these facilities to the International Data Center, by participation of National Data Centers and by contributing to the evaluation process. In some cases, bilateral and multilateral cooperation will be important. Countries can also assist by providing technical and financial assistance in these areas to other countries whose participation is essential.
- The Chairman of the Ad Hoc Group has written to a number of countries urging their participation in the GSETT-3. Copies of these letters have been provided to the Chairman of the NTB Ad Hoc Committee. The Ad Hoc Group will continue this initiative.
- Thus far the main focus of the preparations for GSETT-3 has been on identifying and establishing the first tier of the global network, the Alpha stations. The Ad Hoc Group will work to identify additional existing seismic facilities which can contribute to GSETT-3 in those countries which have not yet made a commitment of participation in GSETT-3. To this end the Group designated a representative to work with the Federation of Digital Seismograph Networks (FDSN) to determine the potential usefulness of stations in these networks to GSETT-3. The FDSN has agreed to cooperate with the Ad Hoc Group in this endeavour. Countries having any stations identified through these initiatives will be contacted to obtain formal approval by the country for participation in GSETT-3.

It is of particular importance to ensure financial resources for continuous data transmission, and for operation of other facilities during GSETT-3.

7. The Ad Hoc Group conducted in-depth discussions of the results of the three working groups that it has established to deal with the planning, operation and evaluation of GSETT-3. Several meetings of these working groups were held during the session. A summary of the status of the efforts of these three working groups is annexed to this progress report.

As a result of the efforts of the working groups, substantial progress has been made regarding the preparations for GSETT-3. Particularly noteworthy is the rapid progress in establishing and starting operations at the IDC. Plans for conducting and evaluating GSETT-3 have been developed in considerable detail. There are, however, some areas of concern, as noted by these working groups:

- The current lack of commitment to participate in GSETT-3 may delay a successful optimization of all processes in the GSETT-3 system. The desired gradual build-up towards the full-scale testing may suffer from such delays.
- The successful operation of the IDC during GSETT-3 depends on support from participating countries for both software and personnel. A plan for involvement of a number of countries in the operation of the IDC was presented.
- Significant contributions from experts and NDCs in the participating countries are needed for the evaluation process.

8. The Chairman of the Ad Hoc Group reported to the Group on the results of informal consultations which he has been conducting with participating delegations on various proposals that were submitted to the Group during its thirty-sixth session. These proposals, on which no consensus was reached at that time concerned work in the areas of seismic event identification methods, non-seismological monitoring techniques, and for the consideration of non-seismic methods.

9. The Ad Hoc Group is at present giving priority to the planning and conduct of GSETT-3. This extensive global experiment could provide information relating to a future International Seismic Monitoring System (ISMS) which could be useful to the NTB Committee in their negotiations:

- The station network designed for GSETT-3 could provide a basis for the design of the ISMS.
- The functions and products which have been designed for the experimental IDC could be a guide to the functions and products required from the ISMS for monitoring purposes.
- The detailed instructions and procedures developed for GSETT-3 could provide a good foundation for an Operating Manual for the components of the ISMS.
- The hardware and software developed at the experimental IDC and at existing and new seismological stations, and the experience gained by system operators around the world, could provide a valuable infrastructure that could facilitate the rapid implementation of the ISMS.

- The results and experiences which could be obtained as GSETT-3 evolves could be useful in modifying the system design, in estimating system capabilities, staffing requirements and operating instructions of the ISMS.
  - GSETT-3 could provide valuable information on costs associated with the establishment and operation of the ISMS.
10. As previously noted, the infrastructure of the ISMS is flexible enough to incorporate the collection, archiving and distribution of data from non-seismic techniques, for example, radioactivity, hydroacoustics and infrasound. During the session, the Group received two national reports on networks for monitoring radionuclides in the atmosphere.
11. More specifically, the Ad Hoc Group proposes to undertake the following tasks in support of the CD and its NTB Committee:
- Conduct GSETT-3 as planned.
  - Provide information on all aspects of GSETT-3 to the CD, the NTB Committee and any of its working groups.
  - Study how the GSETT-3 data exchange system, in particular the experimental IDC, might also be used for the collection, processing and distribution of data from other monitoring techniques.
  - Respond in a timely and prompt manner to requests from the NTB Committee or its Verification Working Group for specific tasks of a technical and scientific nature.
12. The Ad Hoc Group received and appreciated briefings from the Chairman of the Ad Hoc Committee on a Nuclear Test Ban. The Group agreed to invite the Chairman of the Ad Hoc Committee on a Nuclear Test Ban and the Chairman of the Ad Hoc Committee's Working Group on Verification to its next sessions.
13. The Ad Hoc Group noted with appreciation the convening of three informal technical meetings since its previous session.
- During 9-11 August 1993, Finland hosted an informal workshop in Helsinki on the issue of seismic detection methods. The workshop was organized into two parts, comprising invited technical presentations and drafting of a report. The workshop was attended by eight experts from five countries.
  - On 2 November 1993, the United States hosted a tour and informal demonstration for CD ambassadors of the facilities of the experimental International Data Center (IDC) being developed by the Group for the GSETT-3. The purpose was to acquaint the participants with the ongoing work of the Ad Hoc Group as related to the planning and carrying out of the GSETT-3, with particular emphasis on the role of the International Data Center. Representatives from 25 countries attended the

demonstration and tour. The Chairman and Scientific Secretary of the GSE also attended and provided an overview of the activities and plans of the Group to the ambassadors.

- During 10-14 November 1993, Italy hosted a workshop in Erice, Sicily, on planning and procedures for GSETT-3. The aim of the workshop was to provide a factual contribution to the activities of the Ad Hoc Group before its thirty-seventh formal session. In particular, the workshop was dedicated to the preparation of the GSETT-3 global experiment. The workshop was attended by 50 experts from 23 countries. Proceedings from the workshop will be published as a special issue of the scientific journal "Annali di Geofisica".

14. The Ad Hoc Group received a request from the Ad Hoc Committee on a Nuclear Test Ban to provide a report summarizing the activities of the Group in the context of the GSETT-3. The Ad Hoc Group appointed a drafting group to prepare such a report. The Ad Hoc Group suggests that its next session, subject to approval by the Conference on Disarmament, should be convened from 21 to 25 March 1994 in Geneva, to finalize the report and present the report to the Ad Hoc Committee on a Nuclear Test Ban. Thereafter, the Ad Hoc Group envisages to meet early in the second part of the session of the Conference on Disarmament, at a date to be agreed during the March session.

Annex I

GSETT-3 Participation Status as of 18 February 1994

| Country            | Prop.<br>Alpha<br>Stations | No. of Stations<br>by countries * |         | Date, when<br>decision on<br>commitment<br>is expected | Date, when<br>data will be<br>available<br>to the IDC | Comments          |
|--------------------|----------------------------|-----------------------------------|---------|--------------------------------------------------------|-------------------------------------------------------|-------------------|
|                    |                            | Alpha                             | Beta    |                                                        |                                                       |                   |
| Argentina          | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Australia          | 5                          | 5                                 | 11      | committed                                              | Mar.-Sep. 1994                                        | -                 |
| Austria            | 0                          | 0                                 | 1       | June 1994                                              | Aug. 1994                                             | -                 |
| Belgium            | 0                          | 0                                 | 0       | -                                                      | -                                                     | Gamma only        |
| Bolivia            | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Botswana           | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Brazil             | 1                          | 1                                 | 0       | committed                                              | -                                                     | -                 |
| Canada             | 3                          | 6                                 | 19      | unknown                                                | Mar./June 1994                                        | -                 |
| Centr. Afric. Rep. | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| China              | 3                          | -                                 | -       | -                                                      | -                                                     | to be defined     |
| Czech Rep.         | 0                          | 0                                 | 1       | unknown                                                | Sep. 1994                                             | -                 |
| Denmark            | 1                          | 1                                 | 0       | July 1994                                              | July 1994                                             | Planning remains  |
| Egypt              | 1                          | 1                                 | 0       | unknown                                                | unknown                                               | Work remains      |
| Finland            | 1                          | 1                                 | 4       | committed                                              | now                                                   | -                 |
| France             | 0                          | -                                 | -       | -                                                      | -                                                     | under examination |
| Germany            | 1                          | 1                                 | 9       | unknown                                                | now                                                   | -                 |
| Hungary            | 0                          | 0                                 | 1       | committed                                              | now                                                   | -                 |
| India              | 1                          | 1                                 | 0       | committed                                              | -                                                     | -                 |
| Indonesia          | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Italy              | 0                          | 0                                 | 2       | committed                                              | now                                                   | -                 |
| Ivory Coast        | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Japan              | 1                          | 1                                 | 0       | committed                                              | June 1994                                             | -                 |
| Kazakhstan         | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Kenya              | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Rep. of Korea      | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Mexico             | 0                          | 1                                 | 2       | June 1994                                              | July 1994                                             | Work remains      |
| Netherlands        | 0                          | 0                                 | 1       | committed                                              | Aug. 1994                                             | -                 |
| N. Africa (XAF)    | 1                          | -                                 | -       | -                                                      | -                                                     | MEDNET Opt.       |
| New Zealand        | 0                          | 0                                 | 2       | committed                                              | now                                                   | -                 |
| Norway             | 3                          | 3                                 | 1       | committed                                              | now/Oct. 1994                                         | -                 |
| Pakistan           | 1                          | 1                                 | 1       | committed                                              | unknown                                               | Comm. uncertain   |
| Paraguay           | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Papua New Guinea   | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Peru               | 0                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Romania            | 0                          | 0                                 | 1       | committed                                              | Sep. 1994                                             | -                 |
| Russian Fed.       | 5                          | 4                                 | 6       | May 1994                                               | Jan. 1995                                             | -                 |
| S. America (XSA)   | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| South Africa       | 1                          | 1                                 | 1       | committed                                              | Mar./June 1994                                        | Work remains      |
| Spain              | 1                          | 1                                 | 0       | committed                                              | Jan. 1995                                             | poss. plus 1 Beta |
| Sweden             | 0                          | 1                                 | 0       | committed                                              | May 1994                                              | Coop. with Norway |
| Switzerland        | 0                          | 0                                 | 3       | April 1994                                             | Jan. 1995                                             | Work remains      |
| Thailand           | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Turkey             | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| Turkmenistan       | 1                          | -                                 | -       | -                                                      | -                                                     | -                 |
| United Kingdom     | 0                          | 0                                 | 1       | committed                                              | Oct. 1994                                             | -                 |
| United States      | 8                          | 11                                | 14      | comm.:3α,9β                                            | now/Apr.1994/unkn.                                    | Work remains      |
| Total (committed)  | 53                         | 41 (19)                           | 81 (35) |                                                        |                                                       |                   |

\* No. of stations already committed, or planned (not yet committed)

Countries for which a commitment is needed for one or more Alpha stations in the GSETT-3 network:

Argentina  
Bolivia  
Botswana  
Canada  
Central African Republic  
China  
Denmark  
Egypt  
Germany  
Indonesia  
Ivory Coast  
Kazakhstan  
Kenya  
Republic of Korea  
Papua New Guinea  
Paraguay  
Russian Federation  
Thailand  
Turkey  
Turkmenistan

Annex II

STATUS REPORT FROM GSETT-3 WORKING GROUP ON PLANNING

Terms of reference

The main purpose of the Working Group on Planning is to organize the preparations for GSETT-3. Work is being conducted under the following terms of reference:

1. Design and develop the plan and procedures for GSETT-3, including the structure of the overall documentation for the test. The documentation structure would include all the information needed to plan, operate and evaluate GSETT-3.
2. Coordinate the plan and procedures documentation with the Operations and Evaluation Working Groups to ensure that it reflects all the information needed by all the groups.
3. Initiate informal technical contact with potential participants to help define the Alpha, Beta and Gamma stations. Advise the Scientific Secretary and the Chairman of need to initiate formal contacts.
4. On behalf of the Planning, Operations and Evaluation Working Groups, serve as a focal point to contact participants and collect all information needed for the plan and procedures documentation.
5. Produce the documentation and distribute it to the Group through the Scientific Secretary.
6. Continue to develop and maintain the GSETT-3 documentation throughout the planning, operations and evaluation phases of GSETT-3.

Overall documentation structure

The GSETT-3 Working Groups have agreed to produce an integrated set of documentation for the test, containing all the material needed to plan, conduct and evaluate GSETT-3. An overall structure comprising five volumes is envisaged, as follows:

- Volume 0: Overview
- Volume 1: Plan
- Volume 2: Operations materials
- Volume 3: Facilities
- Volume 4: Evaluation

An overview of GSETT-3 (Volume 0) has already been produced in the form of a colour booklet. The task of preparing material for the other four volumes has been

distributed between the working groups. Volume 3 will contain factual information on all facilities used in GSETT-3, including stations, data centres (NDCs and IDC) and communications. The GSETT-3 participants will be responsible for providing the information required on the facilities contributed. To facilitate the process of collecting and compiling such data, one or more templates are being developed and will be forwarded to the GSETT-3 participants in due course.

### Participation

In its session in August 1993, the GSE proposed an Alpha network comprising 53 stations. Countries for which commitment to participate with proposed Alpha stations was lacking, were approached in writing in December 1993. A few of these countries have since made their commitment, but it is very disturbing that only 19 Alpha stations are committed as of the end of the February 1994 GSE session. Further calls for participation have been initiated through the CD and its NTB Ad Hoc Committee.

Several questionnaires have been issued to collect information needed from GSETT-3 participants, especially on status development and contact persons. One questionnaire issued together with the Operations Working Group collected information on plans related to reporting by the NDCs of Gamma data. It appears that many countries plan to provide such data, but it may be difficult for them to find resources to provide Gamma data within 48 hours, especially during weekends.

### Definition of the Beta-station network

A specific network of Beta stations for GSETT-3 has not yet been defined. Several countries have offered such stations, and efforts are under way to identify additional candidate stations around the world that would meet the requirements. Stations that belong to networks associated with the International Federation of Broadband Digital Seismograph Networks are of special interest in this regard. A concrete proposal for a Beta-station network will be worked out, so that the host countries in question can be approached and asked to make commitments to contribute data from these stations in GSETT-3.

### Areas of concern

The major concern is the current lack of commitment to participate with Alpha stations in GSETT-3. This can potentially hamper the development work at the IDC, and makes the desired gradual build-up towards the full-scale testing more difficult.

Another concern at this time is a potential lack of geographical balance in the Beta-station network.

### Annex III

#### STATUS REPORT FROM GSETT-3 WORKING GROUP ON OPERATIONS

##### Terms of reference

The terms of reference of the Operations Working Group have been agreed as follows:

1. Design and implement the elements of the Experimental International Seismic Monitoring System according to the concepts agreed to within the GSE.
2. Establish the system requirements, the functional specifications and operational plans.
3. Provide information to the planning group for them to incorporate this information into the GSETT-3 Plan and Procedures documentation.
4. Provide metrics to the Evaluation Group on a timely basis in agreed formats.
5. Incorporate recommendations from the Evaluation Group on an ongoing basis during GSETT-3. For example, expanding the network, upgrading the stations, incorporation of new procedures.
6. Maintain technical contacts during GSETT-3.

##### GSETT-3 operations plan

The plan calls for a series of four versions of the system (0, 1, 2 and 3) leading up to the start of full-scale testing of the complete system at the beginning of 1995. Each version will include new participants, stations, software, hardware, staff and processing objectives. During version 0, which began in early 1993, the Operations Group focused on adding new stations, testing communications facilities and the development of IDC software.

Design of the general IDC systems architecture is nearly complete. The data processing and analysis programs are improved versions of those used by the Washington IDC during GSETT-2. New software for acquiring and providing access to data has been developed and is currently being tested in cooperation with several National Data Centers (NDCs). The flexibility of the architecture will permit relatively easy modification of most operational procedures, for example, signal and event processing parameters, time schedules etc.

### GSETT-3 version 0 results

Processing of data collected from six Alpha and fifteen Beta stations in Europe and Scandinavia resulted in the production of an Alpha Event List within about one hour, and an analyst Reviewed Event Bulletin within two days that contain a daily average of about 20 events. The addition of data from Beta stations in central Europe (the only area where the density of version 0 Beta stations is significantly higher than for the Alpha stations) resulted in an 84 per cent decrease in the area of the location error ellipse.

GSETT-3 version 1 started in February 1994. The major objective during version 1 will be to add further stations and to add and test new seismological procedures discussed by the GSE.

### Operations manuals

The Operations Working Group has assumed responsibility for preparing volume 2 of the GSETT-3 documentation. This volume, to be divided into three manuals, will describe facilities, supporting organizations and operational procedures for the three key elements of the system, namely:

International Data Center  
National Data Centers  
Seismic Stations

An outline of the volume has been agreed upon which provides a comprehensive and consistent structure between the various manuals. Particular emphasis has been placed on defining the operational aspects of the new concepts that most widely affect the participants and products including communications of both Alpha and Beta data, selection and use of Gamma data, signal and event processing and services to be provided to the participants. Much of the material required for these documents is already available and it is expected that complete drafts of all three manuals will be completed during the intersessional period.

### Areas of concern

- The successful optimization of all processes in the GSETT-3 system depends crucially on the early implementation and testing of new stations prior to the start of the full-scale test in 1995. At this time only about 10 per cent of the proposed number of stations are contributing data to the GSETT-3 system.
- The Operations Group is actively seeking support from participating States for software and staff to ensure successful operation of the IDC during GSETT-3.

Annex IV

STATUS REPORT FROM GSETT-3 WORKING GROUP ON EVALUATION

Terms of reference

The terms of reference of the Evaluation Working Group have been identified as follows:

1. Develop criteria for, and execute, acceptance tests for all elements of the system.
2. Develop criteria for and execute dynamic ongoing evaluations on the operation and performance of the system.
3. Develop criteria for and execute periodic comprehensive evaluations on the operation and performance of the system.
4. In executing these tests and evaluations, engage all participants to the extent required.
5. Provide recommendations to the Operations Working Group on an ongoing basis during GSETT-3.
6. Collect all the data and information needed to evaluate all elements of the EISMS, including cost.
7. Provide appropriate documentation for all the above steps and formal reports to the GSE.

Time Schedule of the Evaluation Task

The evaluation task is an ongoing process with the following tentative schedule:

|                 |                                                                                                                                                |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| following 1994: | Presentation of the proposed evaluation programme to the GSE                                                                                   |
| March 1994:     | Start evaluation of available elements of the EISMS                                                                                            |
| July 1994:      | first evaluation report on the IDC and some other modules of the EISMS                                                                         |
| September 1994: | acceptance testing of the components of the EISMS. i.e. some of the alpha stations, the beta stations, the IDC, the communications and the NDC |

February 1995: evaluation report on the performance of the EISMS at least every six months to the GSE; with possible modifications of evaluation criteria, and of concepts and procedures of the EISMS

### Organization

Detailed test methods will be worked out by the evaluation group in conjunction with the Operations Working group. These should describe exactly what will be tested, who is responsible and what the criteria of success are.

The evaluation will require contributions from many experts but it is the responsibility of the evaluation group to propose the evaluation criteria, to coordinate the evaluation, to evaluate the overall performance of the EISMS and to report to the GSE.

These reports will be written every sixth month and should contain an evaluation of the EISMS with regard to the objectives set by the GSE. Areas where improvements are needed will be identified and if these improvements require changes in the concepts or in agreed procedures, the evaluation group will propose such changes to the GSE. If only changes in the implementation details are needed, they will be addressed directly to the operations working group.

### Evaluation manual

The Evaluation Working Group is responsible for preparing volume 4 of the GSETT-3 documentation. After an overview of the evaluation programme, and of the general issues to be fulfilled by the EISMS (such as new concepts, detection capability, location accuracy, cost estimates, etc.). This volume will contain a comprehensive description of each module of EISMS (stations, communications, NDC, IDC and seismological methods) in terms of standards required, acceptance tests, ongoing evaluation and responsibility for their evaluation.

It is expected that a complete draft of this volume will be submitted to the GSE during the present session.

### Areas of concern

To achieve such a goal, the Evaluation Working Group needs the efficient participation of experts and NDC facilities during the entire evaluation process.

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